

10/26/2011

Page 1 of 2

1214838 - R8 SDMS



Third West Weekly Report
Shepherd, Michael

to:

Joyce Ackerman, 'Craig Barnitz (cbarnitz@utah.gov)'

10/26/2011 08:32 AM

• Hide Details

From: "Shepherd, Michael" <Michael.Shepherd@PacifiCorp.com>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Barnitz (cbarnitz@utah.gov)'"
<cbarnitz@utah.gov>

History: This message has been replied to.

9 Attachments



Weekly Reports 10-17-11 to 10-22-11.pdf Third West FCR Weekly Log - 2011.42.pdf 222689-1.pdf 222690-1.pdf



222866-1.pdf 222867-1.pdf 222919-1.pdf 223009-1.pdf 223071-1.pdf

Joyce & Craig,

Attached are the reports for the week of October 17, 2011.

All air monitoring results came back negative.

To follow up from last week's question, we have been monitoring at four points around the exclusion zone plus two more points around the non-exclusion zone perimeter, six total each day. We also have been monitoring on the weekends for a few weeks now. Thus far we have only seen three isolated chrysotile hits. We discussed at the conception of this project that once we establish a base of air monitor results that are favorable that we could reduce the number of air monitors to four points around the site perimeter and stop monitoring on the weekends. I would like to start this approach this week. Have you had a chance to discuss this?

Sincerely,

Mike Shepherd
Project Manager
Rocky Mountain Power - Major Projects
801.220.4584 Office
801.631.1310 Cell
801.220.2797 Fax
michael.shepherd@pacificorp.com



October 26, 2011

Laboratory Code: RES
Subcontract Number: NA
Laboratory Report: RES 223071-1
Project # / P.O. #: None Given
Project Description: 3rd West Sub- PacifiCorp

David Roskelley
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 223071-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeanne Spencer Orr", is written over a horizontal line.

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 223071-1
 Client: R & R Environmental
 Client Project Number / P.O.: None Given
 Client Project Description: 3rd West Sub- PacifiCorp
 Date Samples Received: October 25, 2011
 Analysis Type: TEM, AHERA
 Turnaround: 24 Hour
 Date Samples Analyzed: October 25, 2011

Client ID Number	Lab ID Number	Area Analyzed (mm ²)	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm ²)
3W-102211-N	EM 814331	0.1100	780	ND	0.0045	BAS	BAS
3W-102211-S	EM 814332	0.1100	780	ND	0.0045	BAS	BAS
3W-102211-E	EM 814333	0.1100	780	ND	0.0045	BAS	BAS
3W-102211-W	EM 814334	0.1100	780	ND	0.0045	BAS	BAS
Blank	EM 814335	NA	0	NA	----	----	----
Blank	EM 814336	NA	0	NA	----	----	----

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.011

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

Digitally
signed by
Gina Verbruggen
Date
2011.10.26
07:22:48
0800

DATA QA



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station

Date: 10/17/11

Location: 3rd West, 1st South, SLC

Job Number: _____

Survey Conducted By: Craig Ford

Title: _____

		In Compliance	Out of Compliance	N/A	
Standard	Title	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Corrective Action Taken and Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	
<i>Standard</i>	<i>Title</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Corrective Action Taken and Date</i>
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			x	

		In Compliance	Out of Compliance	N/A	
<i>Standard</i>	<i>Title</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Corrective Action Taken and Date</i>
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	x			
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a 1/2 fire resistance barrier.			x	

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<i>Standard</i>	<i>Title</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Corrective Action Taken and Date</i>
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			x	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	
<i>Standard</i>	<i>Title</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Corrective Action Taken and Date</i>
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Comments:

Newman excavating to a depth of approximately 6-8 feet for footings in the Southeast section of the site.

Excavated soil loaded on 2 dump trucks for off-site storage.

CVE continued with building forms and placing building materials for the new building on the North end of the site.

No active exclusion zone.

3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

DATE: 10/17/11

General

- ☒ Work area Health and Safety Inspection
- NA Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
- NA Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
- NA Site hazard and safety instruction for all first time employees, contractors or visitors
- NA Complete Employee Meeting Record Form B (where applicable)
- NA Document required Respirator Training completion with Form H
- NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
- NA Confirm return of waste material manifest documents for each load with site manager.
- NA Complete all CSHASP Forms (for applicable activities planned for that day)
 - NA Illness/Injury Report Form A
 - NA Site-Specific Training Record Form C
 - NA Hot Work Permit Form D
 - NA Trench/Evacuation Permit Form E
 - NA Combined Space Entry Permit Form F
 - NA Exclusion zone operations are practiced as instructed.
- NA Decontamination unit is working properly.
- NA Workers are using decontamination unit as instructed.
- NA Workers use personal protective equipment properly.
- ☒ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
- ☒ Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
- ☒ Review sign-in/sign-out log throughout and at the end of the workday.
- ☒ Secure the site at the end of the workday; PacifiCorp Employee

Sampling

- NA Soil Confirmation sampling for any newly excavated areas
- NA Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
- NA Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
- NA Digitally photograph each sample location and at any place field sampling personnel determined necessary

- NA Electronically file photo files into the on-site database
- ☒ Complete Field Documentation
 - ☒ Field Sample Data Sheets (FSDS)
 - ☒ Logbook
- NA On-site computer database
- ☒ Label each sample media with a unique number
- ☒ Seal sample(s) in zip lock plastic bags
- ☒ Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☒ Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
- NA Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
- NA Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station

Date: 10/18/11

Location: 3rd West, 1st South, SLC

Job Number: _____

Survey Conducted By: Jon Craig

Title: _____

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

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1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
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1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
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1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
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3rd West Substation Site Project Safety Audit

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Date: 10/19/11

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Job Number: _____

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1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	
<i>Standard</i>	<i>Title</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Corrective Action Taken and Date</i>
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Comments:

Newman excavating to a depth of approximately 6-8 feet for footings in the Southeast section of the site.

Excavated soil loaded on 2 dump trucks for off-site storage.

CVE continued with building forms and placing building materials for the new building on the North end of the site.

No active exclusion zone.



DAILY CHECKLIST

DATE: 10/19/11

<input checked="" type="checkbox"/>	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable)
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA	Complete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit Form F
NA	Exclusion zone operations are practiced as instructed.
NA	Decontamination unit is working properly.
NA	Workers are using decontamination unit as instructed.
NA	Workers use personal protective equipment properly.
<input checked="" type="checkbox"/>	Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
<input checked="" type="checkbox"/>	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
<input checked="" type="checkbox"/>	Review sign-in/sign-out log throughout and at the end of the workday.
<input checked="" type="checkbox"/>	Secure the site at the end of the workday; PacifiCorp Employee

NA	Soil Confirmation sampling for any newly excavated areas
NA	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary

- NA Electronically file photo files into the on-site database
- ☒ Complete Field Documentation
 - ☒ Field Sample Data Sheets (FSDS)
 - ☒ Logbook
- NA On-site computer database
- ☒ Label each sample media with a unique number
- ☒ Seal sample(s) in zip lock plastic bags
- ☒ Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☒ Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
- NA Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
- NA Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station

Date: 10/14/11

Location: 3rd West, 1st South, SLC

Job Number: _____

Survey Conducted By: Justin Kargis

Title: _____

		In Compliance	Out of Compliance	N/A	
Standard	Title	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Corrective Action Taken and Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	
<i>Standard</i>	<i>Title</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Corrective Action Taken and Date</i>
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a 1/2 fire resistance barrier.			x	

		In Compliance	Out of Compliance	N/A	
<i>Standard</i>	<i>Title</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Corrective Action Taken and Date</i>
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Comments:

Newman continued excavation and material removal in S. E. zone.

CVE fabricators continued setting wall forms for transformer building in zone 1.

People on the roof of the precision printing building were covering swamp coolers during the day.

Craig from Ut. DEQ called to check in on site progress..

HAZWOPER class testing concluded, 4 CVE fabricators given stickers.

3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

DATE: 10/20/11

General

- ☒ Work area Health and Safety Inspection
- NA Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
- NA Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
- NA Site hazard and safety instruction for all first time employees, contractors or visitors
- NA Complete Employee Meeting Record Form B (where applicable)
- NA Document required Respirator Training completion with Form H
- NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
- ☒ Confirm return of waste material manifest documents for each load with site manager.
- NA Complete all CSHASP Forms (for applicable activities planned for that day)
 - NA Illness/Injury Report Form A
 - NA Site-Specific Training Record Form C
 - NA Hot Work Permit Form D
 - NA Trench/Evacuation Permit Form E
 - NA Combined Space Entry Permit Form F
 - NA Exclusion zone operations are practiced as instructed.
 - NA Decontamination unit is working properly.
 - NA Workers are using decontamination unit as instructed.
 - NA Workers use personal protective equipment properly.
- ☒ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
- ☒ Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
- ☒ Review sign-in/sign-out log throughout and at the end of the workday.
- ☒ Secure the site at the end of the workday

Sampling

- NA Soil Confirmation sampling for any newly excavated areas
- ☒ Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
- NA Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
- NA Digitally photograph each sample location and at any place field sampling personnel determined necessary

- NA Electronically file photo files into the on-site database
- ☒ Complete Field Documentation
 - ☒ Field Sample Data Sheets (FSDS)
 - ☒ Logbook
- NA On-site computer database
- ☒ Label each sample media with a unique number
- ☒ Seal sample(s) in zip lock plastic bags
- ☒ Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☒ Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
- NA Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
- NA Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station

Date: 10/21/11

Location: 3rd West, 1st South, SLC

Job Number: _____

Survey Conducted By: Justin Kargis

Title: _____

		In Compliance	Out of Compliance	N/A	
Standard	Title	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Corrective Action Taken and Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

		In Compliance	Out of Compliance	N/A	
<i>Standard</i>	<i>Title</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Corrective Action Taken and Date</i>
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	
Standard	Title	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Corrective Action Taken and Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Comments:

Newman continued excavation and material removal in S. E. zone, ended work day around 1 pm.

CVE fabricators poured walls for transformer building.

Kayli with Wilding came by in the morning to update the SWPPP.

3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

DATE: 10/21/11

General

- ☒ Work area Health and Safety Inspection
- NA Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
- NA Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
- NA Site hazard and safety instruction for all first time employees, contractors or visitors
- NA Complete Employee Meeting Record Form B (where applicable)
- NA Document required Respirator Training completion with Form H
- NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
- ☒ Confirm return of waste material manifest documents for each load with site manager.
- NA Complete all CSHASP Forms (for applicable activities planned for that day)
 - NA Illness/Injury Report Form A
 - NA Site-Specific Training Record Form C
 - NA Hot Work Permit Form D
 - NA Trench/Evacuation Permit Form E
 - NA Combined Space Entry Permit Form F
 - NA Exclusion zone operations are practiced as instructed.
 - NA Decontamination unit is working properly.
 - NA Workers are using decontamination unit as instructed.
 - NA Workers use personal protective equipment properly.
- ☒ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
- ☒ Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
- ☒ Review sign-in/sign-out log throughout and at the end of the workday.
- ☒ Secure the site at the end of the workday

Sampling

- NA Soil Confirmation sampling for any newly excavated areas
- ☒ Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
- NA Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
- NA Digitally photograph each sample location and at any place field sampling personnel determined necessary

- NA Electronically file photo files into the on-site database
- ☒ Complete Field Documentation
 - ☒ Field Sample Data Sheets (FSDS)
 - ☒ Logbook
- NA On-site computer database
- ☒ Label each sample media with a unique number
- ☒ Seal sample(s) in zip lock plastic bags
- ☒ Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☒ Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
- NA Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
- NA Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station

Date: 10/22/11

Location: 3rd West, 1st South, SLC

Job Number: _____

Survey Conducted By: Jon Craig

Title: _____

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

<i>Standard</i>	<i>Title</i>	In Compliance	Out of Compliance	N/A	<i>Corrective Action Taken and Date</i>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			x	

		In Compliance	Out of Compliance	N/A	
<i>Standard</i>	<i>Title</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Corrective Action Taken and Date</i>
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	x			
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a 1/2 fire resistance barrier.			x	

		In Compliance	Out of Compliance	N/A	
<i>Standard</i>	<i>Title</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Corrective Action Taken and Date</i>
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			x	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	
Standard	Title	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Corrective Action Taken and Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Comments:

CVE removed concrete forms from the foundation for the new building on the North end of the site.

No excavating.

No active exclusion zone.

3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

DATE: 10/22/11

General

- ☒ Work area Health and Safety Inspection
- NA Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day.
- NA Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
- NA Site hazard and safety instruction for all first time employees, contractors or visitors
- NA Complete Employee Meeting Record Form B (where applicable)
- NA Document required Respirator Training completion with Form H
- NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
- NA Confirm return of waste material manifest documents for each load with site manager.
- NA Complete all CSHASP Forms (for applicable activities planned for that day)
 - NA Illness/Injury Report Form A
 - NA Site-Specific Training Record Form C
 - NA Hot Work Permit Form D
 - NA Trench/Evacuation Permit Form E
 - NA Combined Space Entry Permit Form F
 - NA Exclusion zone operations are practiced as instructed.
- NA Decontamination unit is working properly.
- NA Workers are using decontamination unit as instructed.
- NA Workers use personal protective equipment properly.
- ☒ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
- ☒ Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
- ☒ Review sign-in/sign-out log throughout and at the end of the workday.
- ☒ Secure the site at the end of the workday; PacifiCorp Employee

Sampling

- NA Soil Confirmation sampling for any newly excavated areas
- NA Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
- NA Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
- NA Digitally photograph each sample location and at any place field sampling personnel determined necessary

- NA Electronically file photo files into the on-site database
- ☒ Complete Field Documentation
 - ☒ Field Sample Data Sheets (FSDS)
 - ☒ Logbook
- NA On-site computer database
- ☒ Label each sample media with a unique number
- ☒ Seal sample(s) in zip lock plastic bags
- ☒ Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☒ Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
- NA Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
- NA Electronically file sample reports into on-site database



PHOTO 1



PHOTO 2



PHOTO 3



PHOTO 4

R & R Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:
DCR

DRAWN BY:

JRWC

DATE:

10/17/2011

FILE:

SITE PHOTOGRAPHS



**3rd West Substation
"2011 Upgrade Project"
Salt Lake City, Utah**



PHOTO 1

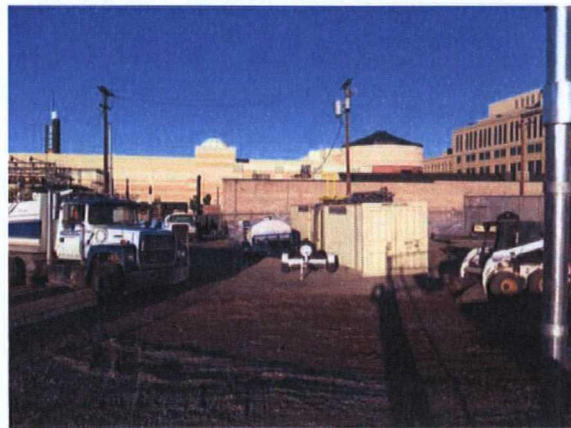


PHOTO 2



PHOTO 3



PHOTO 4

R & R Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:
DCR

DRAWN BY:
JRWC

DATE:
10/18/2011

FILE:

SITE PHOTOGRAPHS



3rd West Substation
"2011 Upgrade Project"
Salt Lake City, Utah



PHOTO 1



PHOTO 2



PHOTO 3



PHOTO 4

R & R Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:

DCR

DRAWN BY:

JRWC

DATE:

10/19/2011

FILE:

SITE PHOTOGRAPHS



**3rd West Substation
"2011 Upgrade Project"
Salt Lake City, Utah**



PHOTO 1



PHOTO 2



PHOTO 3



PHOTO 4

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:
DCR

DRAWN BY:

JMK

DATE:

10/20/2011

FILE:

SITE PHOTOGRAPHS



3rd West Substation
"2011 Upgrade Project"
Salt Lake City, Utah



PHOTO 1

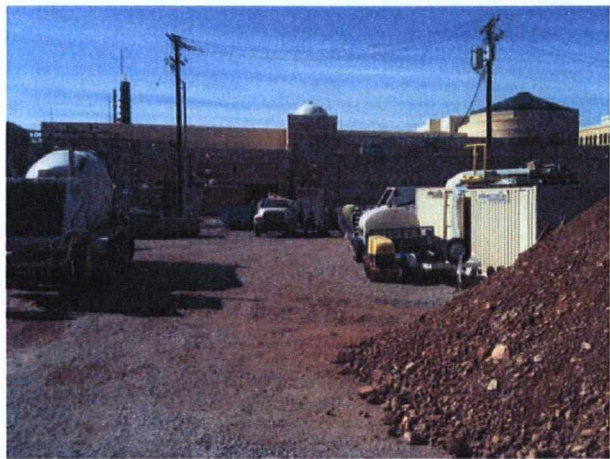


PHOTO 2

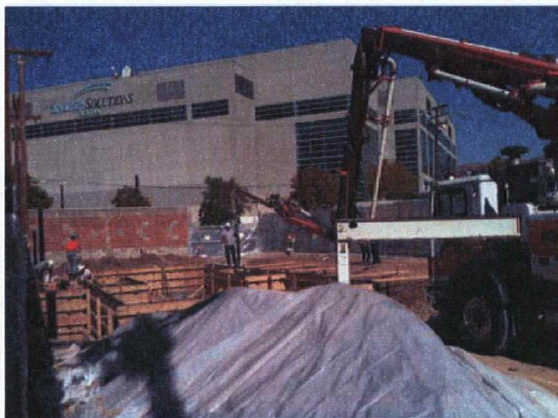


PHOTO 3



PHOTO 4

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:

DCR

DRAWN BY:

JMK

DATE

10/21/2011

FILE:

SITE PHOTOGRAPHS



3rd West Substation
"2011 Upgrade Project"
Salt Lake City, Utah

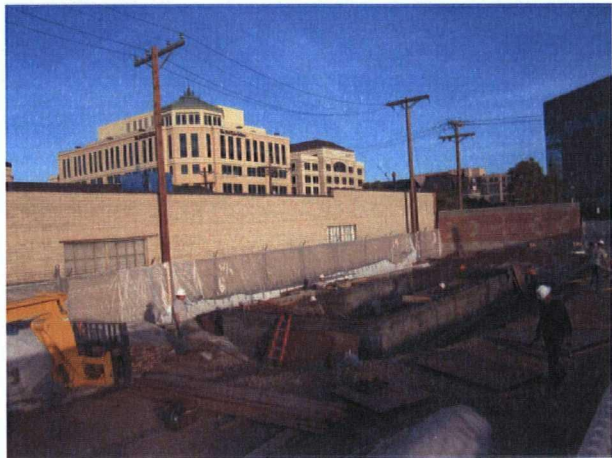


PHOTO 1

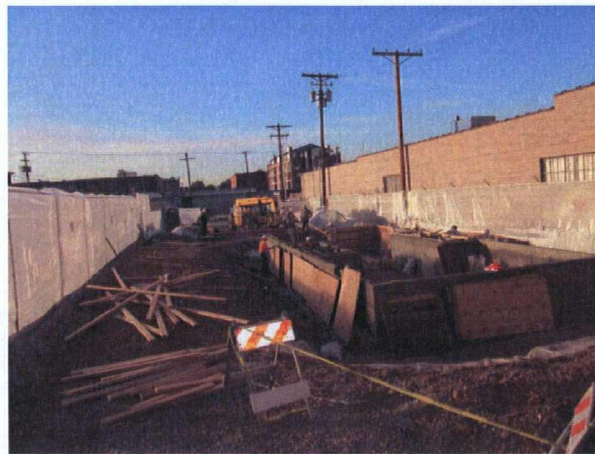


PHOTO 2

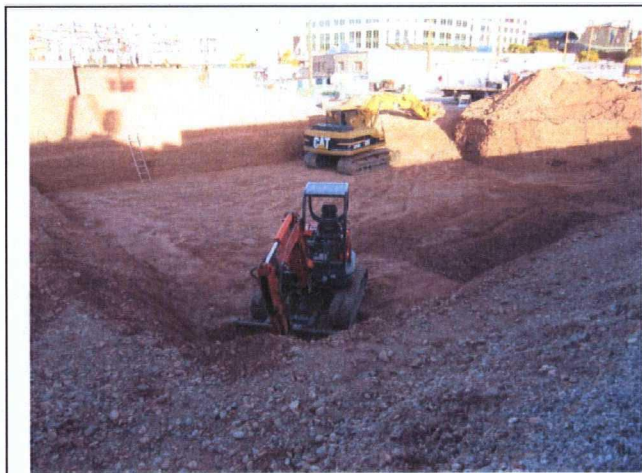


PHOTO 3

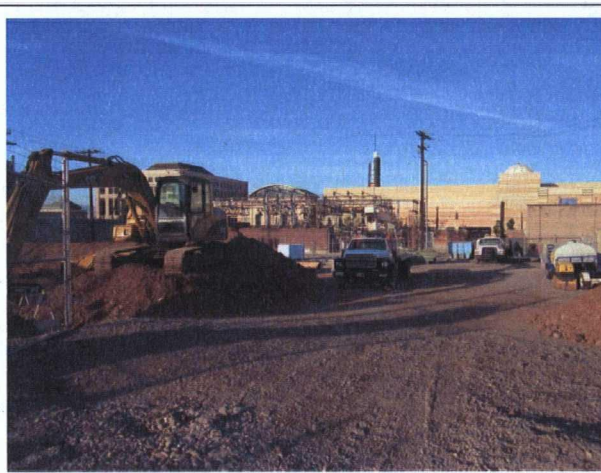


PHOTO 4

R & R Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:
DCR

DRAWN BY:

JRWC

DATE:

10/22/2011

FILE:

SITE PHOTOGRAPHS



**3rd West Substation
"2011 Upgrade Project"
Salt Lake City, Utah**

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE: Monday, October 17, 2011

PO & Work Order NO.: 3000078050 / 10035803

MAIN CONTRACTOR: Cache Valley Electric

Crew Start Time: 6:50

Crew Stop Time: 17:30

Tot Hrs mns: 10:40

FCR Start Time: 6:45

FCR Stop Time: 17:30

Tot Hrs mns: 10:45

Use military time format 00:00

WEATHER CONDITIONS: Partly Cloudy/Sunny - 75 degrees

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. it was necessary to re-open the exclusion zone this morning to facilitate the removal of some material behind the visqueen curtain that is in the way of the pull-box on the west side of the control building. Newman had two people suit-up long enough to accomplish this task and all other personnel were restricted from entering the exclusion zone. We have once again closed down the exclusion zone and currently there is not an active exclusion zone. R&R is conducting a HAZWOPER/Asbestos Awareness Training class on-site today (5 students, 1 trainer). Honey Bucket came into the site and cleaned the portable toilets. Newman is excavating the south end of the east excavation (SE corner of the yard) in preparation for placement of concrete for the "G" foundations. The personnel taking the class tied rebar mats for structures e and G. Contractors: CVE = 3, Newman = 3, R&R = 1, Wilding = 1, Class = 6.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time: Kim Batt 0650

Dispatcher logout, name and time: Ken Barto 1730

DISCREPANCIES:

IMMEDIATE CORRECTIVE ACTION TAKEN:

DELAYS OR LOST TIME ENCOUNTERED:

--

EQUIPMENT (working, delivered, idle):

Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), water wagon, portable wash-down structure, trackhoe, trackhoe w/pavement breaker, mini-ex, bobcat, power washer, water truck, compactor, CVE tool trailer, crew truck, backhoe.

OSHA Recordable Safety Incidents:

Reported by:

Time:



Russ Johnson

Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE: Tuesday, October 18, 2011

PO & Work Order NO.: 3000078050 / 10035803

MAIN CONTRACTOR: Cache Valley Electric

Crew Start Time: 7:00

Crew Stop Time: 17:20

Tot Hrs mns: 10:20

FCR Start Time: 6:40

FCR Stop Time: 17:25

Tot Hrs mns: 10:45

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 70 degrees

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. R&R is continuing the HAZWOPER class. CVE crew continues to form up the walls and tie rebar for the control building walls, approximately 70% complete. Current estimate is to pour the walls on Thursday at 11:00 AM. Newman continues to excavate in the SE corner of the yard (approximately 50% complete) for placement of the spread footings and hauling (two trucks and pups) of excavated material to a storage location off-site. Again, the class personnel tied rebar after the class was concluded. Contractors: CVE = 3, Newman = 5, R&R = 1, Wilding = 1, Class = 6.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time: Kim Batt 0640

Dispatcher logout, name and time: Joe Bryant 1720

DISCREPANCIES:

IMMEDIATE CORRECTIVE ACTION TAKEN:

DELAYS OR LOST TIME ENCOUNTERED:

--

EQUIPMENT (working, delivered, idle):

Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), water wagon, portable wash-down structure, trackhoe, trackhoe w/pavement breaker, mini-ex, bobcat, power washer, water truck, compactor, CVE tool trailer, crew truck, backhoe.

OSHA Recordable Safety Incidents:

Reported by:

Time:



Russ Johnson

Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE : Wednesday, October 19, 2011

PO & Work Order NO. : 3000078050 / 10035803

MAIN CONTRACTOR : Cache Valley Electric

Crew Start Time: 7:00

Crew Stop Time: 17:20

Tot Hrs mns: 10:20

FCR Start Time: 9:00

FCR Stop Time: 17:25

Tot Hrs mns: 8:25

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 70 degrees

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. R&R is continuing the HAZWOPER class. CVE crew continues to form up the walls and tie rebar for the control building walls, approximately 85% complete. Revised pour date of 10/21 @ 1:00. Newman continues to excavate in the SE corner of the yard (approximately 75% complete) for placement of the spread footings and hauling (two trucks and pups) of excavated material to a storage location off-site. Newman expects to proof roll the excavation at 10:00 on Friday, Oct. 21. Contractors: CVE = 3, Newman = 5, R&R = 1, Wilding = 1, Class = 6.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time: Manny LuHaun 0650

Dispatcher logout, name and time: Ken Barto 1725

DISCREPANCIES:

IMMEDIATE CORRECTIVE ACTION TAKEN:

DELAYS OR LOST TIME ENCOUNTERED:

--

EQUIPMENT (working, delivered, idle):

Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), water wagon, portable wash-down structure, trackhoe, trackhoe w/pavement breaker, mini-ex, bobcat, power washer, water truck, compactor, CVE tool trailer, crew truck, backhoe.

OSHA Recordable Safety Incidents:

Reported by:

Time:



Russ Johnson

Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE: Thursday, October 20, 2011

PO & Work Order NO.: 3000078050 / 10035803

MAIN CONTRACTOR: Cache Valley Electric

Crew Start Time: 7:00

Crew Stop Time: 17:20

Tot Hrs mns: 10:20

FCR Start Time: 9:00

FCR Stop Time: 17:25

Tot Hrs mns: 8:25

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 70 degrees

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. R&R completed the HAZWOPER class and all participants passed. The four fabricators spent the rest of the day working with the rest of the CVE crew. CVE crew continues to form up the walls and tie rebar for the control building walls, approximately 95% complete. Revised pour date of 10/21 @ 1:00. Newman continues to excavate in the SE corner of the yard (approximately 85% complete) for placement of the spread footings and hauling (two trucks and pups) of excavated material to a storage location off-site. Newman expects to proof roll the excavation at 10:00 on Friday, Oct. 21 and had a 5 ton smooth drum compactor delivered. Craig Barnett, UDEQ, called to get an update on our progress and a projection as to when we would be opening up our next exclusion zone. I indicated that there is some possibility that it could be the week of 10/31, and if not then, it would be late in the week of 11/7. Contractors: CVE = 3 Newman = 5, R&R = 1, Wilding = 1, Class = 6.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Manny LuHaun 0650
Dispatcher logout, name and time:	Ken Barto 1725

DISCREPANCIES:

IMMEDIATE CORRECTIVE ACTION TAKEN:

DELAYS OR LOST TIME ENCOUNTERED:

--

EQUIPMENT (working, delivered, idle):

Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), water wagon, portable wash-down structure, trackhoe, trackhoe w/pavement breaker, mini-ex, bobcat, power washer, water truck, compactor, CVE tool trailer, crew truck, backhoe, 5 ton compactor.

OSHA Recordable Safety Incidents:

Reported by:

Time:



Russ Johnson

Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE : Friday, October 21, 2011

PO & Work Order NO. : 3000078050 / 10035803

MAIN CONTRACTOR : Cache Valley Electric

Crew Start Time: 6:50

Crew Stop Time: 16:30

Tot Hrs mns: 9:40

FCR Start Time: 6:45

FCR Stop Time: 16:30

Tot Hrs mns: 9:45

Use military time format 00:00

WEATHER CONDITIONS:

Sunny - 70 degrees

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. PSi came to the site at 10:00 to evaluate the grade at the bottom of the excavation as to it's stability. We identified one soft spot along the east side of the excavation and Newman had already overexcavated an additional foot of material to open it up and see if it will dry out over the weekend. PSi will return on Monday to evaluate that area and then will come back around Thursday to look at the entire subgrade when the excavation is complete. CVE crew continued to form up the walls and tie rebar for the control building walls, pull box and vaults. Poured control building walls, pull box and vaults (approximately 24 cy), starting at 1:00 and completing the pour at 2:30. Newman continues to excavate in the SE corner of the yard (approximately 90% complete) for placement of the spread footings and hauling (one truck and pup) of excavated material to a storage location off-site. To date they have hauled approximately 45 loads (truck and pup) to the storage site. Newman shut down early as their trucks would have interfered with the concrete delivery. Brent Wiggins called and discussed the potential for some modifications to the retaining wall along the south side of the project, indicating that it could involve increasing the size of both the wall and the footer, which will probably mean taking down the fence and reinstalling it at the new wall height. CVE will be working on Saturday. Contractors: CVE = 7, Newman = 4, R&R = 1, Wilding = 1, PSi = 1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time: Gus Montanez 0650

Dispatcher logout, name and time: Ken Barteaux 1630

DISCREPANCIES:

IMMEDIATE CORRECTIVE ACTION TAKEN:

DELAYS OR LOST TIME ENCOUNTERED:

--

EQUIPMENT (working, delivered, idle):

Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), water wagon, portable wash-down structure, trackhoe, trackhoe w/pavement breaker, mini-ex, bobcat, power washer, water truck, compactor, CVE tool trailer, crew truck, backhoe, 5 ton compactor, concrete pump truck.

OSHA Recordable Safety Incidents:

Reported by:

Time:

--	--	--



Russ Johnson

Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE: Saturday, October 22, 2011

PO & Work Order NO.: 3000078050 / 10035803

MAIN CONTRACTOR: Cache Valley Electric

Crew Start Time: 6:50

Crew Stop Time: 12:00

Tot Hrs mns: 5:10

FCR Start Time: 6:45

FCR Stop Time: 12:00

Tot Hrs mns: 5:15

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 70 degrees

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. CVE crew stripped forms from the building foundation and installed foam on interior walls of the foundation. Wilding picked up their concrete test cylinders. Newman is not on the site today. Contractors: CVE = 9, R&R = 1, Wilding = 1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time: Earl McGlore 0655

Dispatcher logout, name and time: Earl McGlore 1200

DISCREPANCIES:

IMMEDIATE CORRECTIVE ACTION TAKEN:

DELAYS OR LOST TIME ENCOUNTERED:

--

EQUIPMENT (working, delivered, idle):

Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), water wagon, portable wash-down structure, trackhoe, trackhoe w/pavement breaker, mini-ex, bobcat, power washer, water truck, compactor, CVE tool trailer, crew truck, backhoe.

OSHA Recordable Safety Incidents:

Reported by:

Time:



Russ Johnson

Field Construction Representative



Reservoirs Environmental, Inc.

October 19, 2011

Laboratory Code: RES
Subcontract Number: NA
Laboratory Report: RES 222689-1
Project # / P.O. #: None Given
Project Description: None Given

David Roskelley
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 222689-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 222689-1
 Client: R & R Environmental
 Client Project Number / P.O.: None Given
 Client Project Description: None Given
 Date Samples Received: October 18, 2011
 Analysis Type: TEM, AHERA
 Turnaround: 24 Hour
 Date Samples Analyzed: October 18, 2011 - October 19, 2011

Client ID Number	Lab ID Number	Area Analyzed (mm ²)	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm ²)
3W-101711-N	EM 811915	0.0770	1050	ND	0.0048	BAS	BAS
3W-101711-E	EM 811916	0.0770	1050	ND	0.0048	BAS	BAS
3W-101711-S	EM 811917	0.0770	1046	ND	0.0048	BAS	BAS
3W-101711-W	EM 811918	0.0770	1042	ND	0.0048	BAS	BAS

NA = Not Analyzed
 ND = None Detected
 BAS = Below Analytical Sensitivity
 Average Grid Opening in mm² = 0.011

Filter Material = Mixed Cellulose Ester
 Filter Diameter = 25 mm
 Effective Filter Area = 385 sq mm

ee
 Digitally signed by
 Elisha Ellerman
 DN: CN = Elisha
 Ellerman, C = US,
 O = Reservoirs
 Environmental, Inc.
 Date: 2011.10.19
 11:19:24 -0600

DATA QA

Due Date: 10-19
Due Time: 9:15

REI LAB **Reservoirs Environmental, Inc.**
6801 Logan St. Denver, CO 80216 • Pk: 303 864-1988 • Fax 303 477-4275 • Toll Free: 800 RES-ENV
Pager: 303-868-2088

RES 222689

INVOICE TO: (IF DIFFERENT)

CONTACT INFORMATION:

Company: <u>R & R ENVIRONMENTAL</u>	Company:	Contact: <u>DAVE ROSKELEY</u>	Contact:
Address: <u>4744 7000 So</u>	Address:	Phone: <u>801 541-1035</u>	Phone:
<u>SARASOTA</u>		Fax:	Fax:
<u>VT</u>		Cell/pager:	Cell/pager:
<u>84070</u>		Final Data Deliverable Email Address:	
Project Number and/or P.O. #:			
Project Description/Location:			

ASBESTOS LABORATORY HOURS: Weekdays: 7a-11a - 7p-11p		REQUESTED ANALYSIS												VALID MATRIX CODES				LAB NOTES:																		
PLM / PCM / TEM	<input type="checkbox"/> RUSH (Same Day) <input checked="" type="checkbox"/> PRIORITY (Next Day) <input type="checkbox"/> STANDARD (Rush PCM = 2hr, TEM = 6hr.)	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vec, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s)	RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	Salmonella +/-	E.coli O157:H7 +/-	Listeria +/-	Aerobic Plate Count +/- or Quantification	E.coli +/- or Quantification	Coliforms +/- or Quantification	Staphylococcus +/- or Quantification	Y & M +/- or Quantification	Mold +/- Identification, Quantification	Al = A	Bulk = B																	
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm																																				
Metal(s) / Dust	<input type="checkbox"/> RUSH 24 hr. <input type="checkbox"/> 3-5 Day																																			
RCRA 8 / Metals & Welding Fume Scan / TCLP	<input type="checkbox"/> RUSH 5 day <input type="checkbox"/> 10 day																																			
Organics	<input type="checkbox"/> 24 hr. <input type="checkbox"/> 3 day <input type="checkbox"/> 5 Day																																			
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm																																				
E.coli O157:H7, Coliforms, S.aureus	<input type="checkbox"/> 24 hr. <input type="checkbox"/> 2 Day <input type="checkbox"/> 3-5 Day																																			
Salmonella, Listeria, E.coli, APC, Y & M	<input type="checkbox"/> 48 Hr. <input type="checkbox"/> 3-5 Day																																			
Mold	<input type="checkbox"/> RUSH 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 3 Day <input type="checkbox"/> 5 Day																																			
Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.																																				
Special Instructions:																																				
Client sample ID number (Sample ID's must be unique)																																				
1	3W-101711-N																			811915																
2	3W-101711-E																			16																
3	3W-101711-S																			17																
4	3W-101711-W																			18																
5																																				
6																																				
7																																				
8																																				
9																																				
10																																				

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>CRIM FORD</u>	Date/Time: <u>10/17/11</u> <u>1635</u>	Sample Condition:	On Ice	Sealed	Intact
Laboratory Use Only	Carrier: <u>FedEx</u>	Temp. (F°)	Yes / No	Yes / No	Yes / No
Received By: <u>Kelly</u>	Date/Time: <u>10/18/11</u>				
Results:	Contact: <u>Paul</u> Phone: <u>8120 4613</u> Email: <u></u> Fax: <u></u>	Date:	Time:	Initials:	
	Contact: <u></u> Phone: <u></u> Email: <u></u> Fax: <u></u>	Date:	Time:	Initials:	

TRK# 8735 8120 4613

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

A = Amosite
An = Anthophyllite
C = Chrysotile
Cr = Crocidolite
T = Tremolite

Structure Types

F = Fiber
B = Bundle
C = Cluster
M = Matrix

ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion

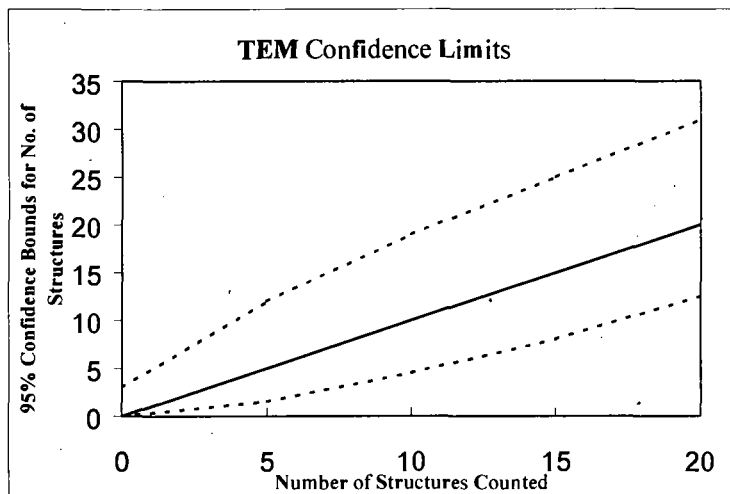
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr
Nathan DelHierro
Angela Heitger
Jonathan Bernard

Paul D. LoScalzo
Mark Steiner
Norberto Zimbleman
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoir Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R & R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1050
Date received by lab	10/18/11
Lab Job Number:	222689
Lab Sample Number:	811915

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to Secondary filter (ml)	

Analyzed by	JK
Analysis date	10/18/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA ASTM)	AA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H5-3	ND												
	E5-3	ND					Prep A	90% intact ~ 5% debris						
	F5-3	ND					Prep B	~70% intact ~5% debris						
	E5-3	ND					few fibers 10/18/11							
B	F3-6	ND												
	E3-6	ND												
	F2-3	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

QA-gsx

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R & R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1050
Date received by lab	10/18/11
Lab Job Number	222689
Lab Sample Number:	811916

Analyzed by	JR
Analysis date	10/19/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	A4
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G4-6	ND												
	F4-6	ND					Prep A	90% intact			5% debris			
	E4-6	ND					Prep B	~ A						
	C4-6	ND												
B	F3-6	ND												
	E3-6	ND												
	C3-6	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	RAR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1046
Date received by lab	10/18/11
Lab Job Number:	222689
Lab Sample Number:	811917

Analyzed by	JB
Analysis date	10/19/11
Method (D=Direct, I=Indirect, IA=Indirect,ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Glass			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H4-4	ND												
	G4-4	ND					Pmp A	90% intact		5% debris				
	F4-4	ND					Pmp B ~ A							
	E4-4	ND												
B	F5-4	ND												
	E5-4	ND												
	C5-4	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnification	(20KX) 30KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	PAR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1042
Date received by lab	10/18/11
Lab Job Number:	222689
Lab Sample Number:	811918

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis data	10/19/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H5-3	ND												
	G5-3	ND												
	F5-3	ND												
	E5-3	ND												
B	H5-6	ND												
	G5-6	ND												
	F5-6	ND												

Rev 3-2006

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{\text{It.}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening

REI LAB ***Reservoirs Environmental, Inc.***

October 25, 2011

Laboratory Code: RES
Subcontract Number: NA
Laboratory Report: RES 222690-1
Project # / P.O. #: None Given
Project Description: Rocky Mtn. Power 3rd
West Sub Station

David Roskelley
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

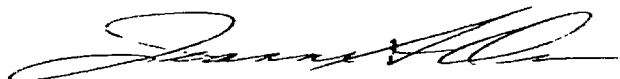
Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 222690-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,



Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 222690-1
 Client: R & R Environmental
 Client Project Number / P.O.: None Given
 Client Project Description: Rocky Mtn. Power 3rd West Sub Station
 Date Samples Received: October 18, 2011
 Analysis Type: TEM, AHERA
 Turnaround: 3-5 Day
 Date Samples Analyzed: October 24, 2011

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm ²)	(L)		(s/cc)	(s/cc)	(s/mm ²)
3W-101511-N.E.	EM 811919	0.0550	1695	ND	0.0041	BAS	BAS
3W-101511-S.E.	EM 811920	0.0550	1692	ND	0.0041	BAS	BAS
3W-101511-N.W.	EM 811921	0.0550	1692	ND	0.0041	BAS	BAS
3W-101511-S.W.	EM 811922	0.0550	1690	ND	0.0041	BAS	BAS
3W-101611-S.E.	EM 811923	0.0770	1136	ND	0.0044	BAS	BAS
3W-101611-N.E.	EM 811924	0.0770	1138	ND	0.0044	BAS	BAS
3W-101611-N.W.	EM 811925	0.0770	1141	ND	0.0044	BAS	BAS
3W-101611-S.W.	EM 811926	0.0770	1145	ND	0.0044	BAS	BAS

NA = Not Analyzed
 ND = None Detected
 BAS = Below Analytical Sensitivity
 Average Grid Opening in mm² = 0.011

Filter Material = Mixed Cellulose Ester
 Filter Diameter = 25 mm
 Effective Filter Area = 385 sq mm

Digitally signed
 by Elisha
 Ellerman
 DN: CN = Elisha
 Ellerman, C =
 US, O =
 Reservoirs
 Environmental,
 Inc.
 2011.10.25
 10:00:00

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number: RES 222690-1
 Client: R & R Environmental
 Client Project Number / P.O.: None Given
 Client Project Description: Rocky Mtn. Power 3rd West Sub Station
 Date Samples Received: October 18, 2011
 Analysis Type: TEM, AHERA
 Turnaround: 3-5 Day
 Date Samples Analyzed: October 24, 2011

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-101511-N.E.	EM 811919	ND	0	0	0	0	0	0	0
3W-101511-S.E.	EM 811920	ND	0	0	0	0	0	0	0
3W-101511-N.W.	EM 811921	ND	0	0	0	0	0	0	0
3W-101511-S.W.	EM 811922	ND	0	0	0	0	0	0	0
3W-101611-S.E.	EM 811923	ND	0	0	0	0	0	0	0
3W-101611-N.E.	EM 811924	ND	0	0	0	0	0	0	0
3W-101611-N.W.	EM 811925	ND	0	0	0	0	0	0	0
3W-101611-S.W.	EM 811926	ND	0	0	0	0	0	0	0

*See Analytical Procedure for definitions

**C = Excluded from total due to lack of confirmation

**L = Excluded from total for length less than 0.5 micron (AHERA only)

**A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 10-21-10-25
Due Time: 915



Reservoirs Environmental, Inc.

5801 Logan St. Denver, CO 80218 • Ph: 303-804-1888 • Fax 303-477-4276 • Toll Free: 888-RESI-ENV

Pager: 308-808-2088

RES 222690

INVOICE TO: (IF DIFFERENT)

CONTACT INFORMATION:

Company: <u>REILAB Environmental</u>	Company:	Contact: <u>Dave Rozelle</u>	Contact:
Address: <u>47 W. 9000 S</u>	Address:	Phone:	Phone:
<u>Sandy, UT 84070</u>		Fax:	Fax:
		Cell/pager: <u>801-541-1035</u>	Cell/pager: <u>801-828-5219</u>
Project Name/Ref P.O. #:		Print Date Deliverable Email Address:	
Project Description/Location: <u>Rocky Mtn Power 3rd West Sub Station</u>		<u>dave@reenviro.com</u>	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		REQUESTED ANALYSIS										VALID MATRIX CODES		LAB NOTES:							
PLM / PCM / TEM	<u>STANDARD</u>	PLM - Short report, Long report, Print Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-sec, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s)	RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	Salmonella +/-	E. coli O157:H7 +/-	Listeria +/-	Aerobic Plate Count +/- or Quantification	E. coli +/- or Quantification	Coliforms +/- or Quantification	S. aureus +/- or Quantification	Y & M +/- or Quantification	Mold +/- Identification, Quantification	SAMPLE'S INITIALS OR OTHER NOTES	Alr = A	Bulk = B	EM Number (Laboratory Use Only)
	<u>RUSH (Same Day) PRIORITY (Next Day)</u>																		Dust = D	Paint = P	
	(Rush PCM = 2hr, TEM = 6hr.)																		Soil = S	Wipe = W	
																			Swab = SW	F = Food	
																			Drinking Water = DW	Waste Water = WW	
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 6pm																					
Meta(h) / Duet	<u>RUSH 24 hr 3-5 Day</u>																				
RCRA 8 / Metals & Welding	<u>RUSH 8 day 10 day</u>																				
Fume Scan / TCLP																					
Organics	<u>24 hr 8 day 5 Day</u>																				
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm																					
E. coli O157:H7, Coliforms, S. aureus	<u>24 hr 2 Day 3-5 Day</u>																				
Salmonella, Ustera, E. coli, APC, Y & M	<u>48 Hr 3-5 Day</u>																				
Mold	<u>RUSH 24 Hr 48 Hr 3 Day 8 Day</u>																				
Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.																					
Special Instructions:																					
Client sample ID number (Sample ID's must be unique)																					
1	3W 101511 - N.E.		X															1.695	A	10/15/11	811919
2	3W 101511 - S.E.																	1.692			20
3	3W 101511 - N.W.																	1.692			21
4	3W 101511 - S.W.																	1.690			22
5	3W 101611 - S.E.																	1.36		10/16/11	23
6	3W 101611 - N.E.																	1.38			24
7	3W 101611 - N.W.																	1.41			25
8	3W 101611 - S.W.																	1.45			26
9																					
10																					

Number of samples received: 8 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Client's Custody sheet constitutes an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>Justin Kargis - FedEx</u>	Date/Time: <u>10/17/11</u>	Sample Condition: On Ice	Sealed	Intact						
Laboratory Use Only		Temp. (F°)	Yes/No	Yes/No						
Received By: <u>Kargis</u>	Date/Time: <u>10/18/11</u>	Carrier: <u>FedEx</u>	Yes/No	<u>Yes/No</u>						
Results:	Contact	Phone Email Fax	Date	Time	Initials	Contact	Phone Email Fax	Date	Time	Initials
	Contact	Phone Email Fax	Date	Time	Initials	Contact	Phone Email Fax	Date	Time	Initials

TRK 7953 0282048

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

A = Amosite
An = Anthophyllite
C = Chrysotile
Cr = Crocidolite
T = Tremolite

Structure Types

F = Fiber
B = Bundle
C = Cluster
M = Matrix

ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion

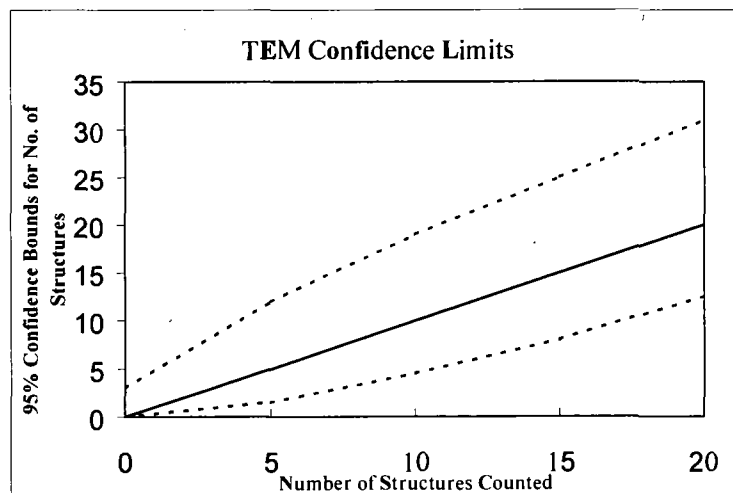
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr
Nathan DelHiero
Angela Heitger
Jonathan Bernard

Paul D. LoScalzo
Mark Steiner
Norberto Zimbleman
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 TD S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1695
Date received by lab	10/18/11
Lab Job Number:	222690
Lab Sample Number:	511919

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	10/24/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

M
10/24/11

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	F4-6	ND												
	E4-6	ND					Pmp A	70% intact		5% debris				
	C4-6	ND					Pmp B	80% intact		5% debris				
B	F4-6	ND												
	E4-6	ND												

Anal 10/24/11

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Page 1 of

Laboratory name:	REI
Instrument	JEOL 100(N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1692
Date received by lab	10/18/11
Lab Job Number:	222690
Lab Sample Number:	511920

Analyzed by	JB
Analysis date	10/24/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AI
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G3-6	MD												
	F3-6	MD					Pup A	80% intact			5-7% debris			
	F4-3	MD					Pup B	80% intact			5-7% debris			
B	G3-4	MD												
	F3-4	MD												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Rev 3-2009

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 10 S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1692
Date received by lab	10/18/11
Lab Job Number:	222690
Lab Sample Number:	511921

Analyzed by	JB
Analysis date	10/24/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting mles (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H4-1	MS												
	G4-1	MS					Pump A	50% intact			5-7% debris			
	F4-1	MS					Pump B	90% intact			5-7% debris			
B	E4-4	MS												
	C4-4	MS												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Page 1 of

Laboratory name:	REI
Instrument	JEOL 100(N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client :	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1690
Date received by lab	10/18/11
Lab Job Number:	222690
Lab Sample Number:	5-119 22

Analyzed by	JB
Analysis date	10/24/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	C4-6	MS												
	B4-6	MS					Pmp A	80% intact			3-5% debris			
	A4-6	MS					Pmp B	80% intact			3-5% debris			
B	E3-3	MS												
	C3-3	MS												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

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Reervoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100(N) S
Voltage (KV)	100 KV
Magnification	20KX/10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1136
Date received by lab	10/18/11
Lab Job Number:	222690
Lab Sample Number:	5119 23

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	10/24/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting miles (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K3-6	ND												
	H3-6	ND					Pump A	80% intact			7-10% debris			
	G3-6	ND					Pump B	90% intact			7% debris			
	F3-6	ND												
B	H4-1	ND												
	G4-1	ND												
	F4-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 10 S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.058 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1138
Date received by lab	10/18/11
Lab Job Number:	222690
Lab Sample Number:	5119 24

Analyzed by	JB
Analysis date	10/24/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Wkth		Amphibole	C	NAM		Sketch	Photo	EDS
A	K5-3	ND												
	H5-3	ND												
	G5-3	ND					Prep A	70% ambient		5% debris				
	F5-3	ND					Prep B	70% ambient		5% debris				
B	G16-4	ND												
	F16-4	ND												
	E16-4	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100(N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client :	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1141
Date received by lab	10/18/11
Lab Job Number	222690
Lab Sample Number:	511925

Analyzed by	JB
Analysis date	10/24/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AI
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	E4-4	ND												
	E4-4	ND												
	E4-4	ND					Purp/	80% intact		5% debris				
	E4-4	ND					Purp/B	50% intact		5% debris				
B	E4-4	ND												
	E4-1	ND												
	E4-4	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Page 1 of _____

Laboratory name:	REI
Instrument	JEOL 100(N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dist area (cm ²)	1145
Date received by lab	10/18/11
Lab Job Number:	222690
Lab Sample Number:	541926

Analyzed by	JTB
Analysis date	10/24/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AIH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K4-4	ND												
	H4-4	ND												
	G4-4	ND												
	F4-4	ND												
B	K3-6	ND												
	H3-6	ND												
	G3-6	ND												

Purp A 80% ambient 5% debris
Purp B 60% ambient 5% debris
JTB 10/24/11

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Rev 3-2009

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0016

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 222690-1
Client: R & R Environmental
Client Project Number / P.O.: None Given
Client Project Description: Rocky Mtn. Power 3rd West Sub Station
Date Samples Received: October 18, 2011
Analysis Type: TEM, AHERA
Turnaround: 3-5 Day
Date Samples Analyzed: October 24, 2011

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Numtwr of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm ²)	(L)		(s/cc)	(s/cc)	(s/mm ²)
3W-101511-N.E.	EM 811919	0.0550	1695	ND	0.0041	BAS	BAS
3W-101511-S.E.	EM 811920	0.0550	1692	ND	0.0041	BAS	BAS
3W-101511-N.W.	EM 811921	0.0550	1692	ND	0.0041	BAS	BAS
3W-101511-S.W.	EM 811922	0.0550	1690	ND	0.0041	BAS	BAS
3W-101611-S.E.	EM 811923	0.0770	1136	ND	0.0044	BAS	BAS
3W-101611-N.E.	EM 811924	0.0770	1138	ND	0.0044	BAS	BAS
3W-101611-N.W.	EM 811925	0.0770	1141	ND	0.0044	BAS	BAS
3W-101611-S.W.	EM 811926	0.0770	1145	ND	0.0044	BAS	BAS

NA = Not Analyzed
 ND = None Detected
 BAS = Below Analytical Sensitivity
 Average Grid Opening in mm² = 0.011

Filter Material = Mixed Cellulose Ester
 Filter Diameter = 25 mm
 Effective Filter Area = 385 sq mm


 DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101895-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number: RES 222690-1
 Client: R & R Environmental
 Client Project Number / P.O.: None Given
 Client Project Description: Rocky Mtn. Power 3rd West Sub Station
 Date Samples Received: October 18, 2011
 Analysis Type: TEM, AHERA
 Turnaround: 3-5 Day
 Date Samples Analyzed: October 24, 2011

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-101511-N.E.	EM 811919	ND	0	0	0	0	0	0	0
3W-101511-S.E.	EM 811920	ND	0	0	0	0	0	0	0
3W-101511-N.W.	EM 811921	ND	0	0	0	0	0	0	0
3W-101511-S.W.	EM 811922	ND	0	0	0	0	0	0	0
3W-101611-S.E.	EM 811923	ND	0	0	0	0	0	0	0
3W-101611-N.E.	EM 811924	ND	0	0	0	0	0	0	0
3W-101611-N.W.	EM 811925	ND	0	0	0	0	0	0	0
3W-101611-S.W.	EM 811926	ND	0	0	0	0	0	0	0

*See Analytical Procedure for definitions

**C = Excluded from total due to lack of confirmation

**L = Excluded from total for length less than 0.5 micron (AHERA only)

**A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1 \text{ L}}{1000 \text{ cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening

Reservoirs Environmental, Inc.

October 21, 2011

Laboratory Code: RES
Subcontract Number: NA
Laboratory Report: RES 222866-1
Project # / P.O. #: None Given
Project Description: PacifiCorp - 3rd W. Substation

David Roskelley
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

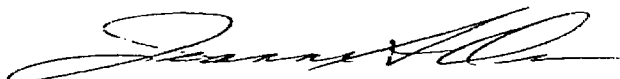
Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 222866-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,



Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 222866-1
 Client: R & R Environmental
 Client Project Number / P.O.: None Given
 Client Project Description: PacifiCorp - 3rd W. Substation
 Date Samples Received: October 20, 2011
 Analysis Type: TEM, AHERA
 Turnaround: 24 Hour
 Date Samples Analyzed: October 21, 2011

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm ²)	(L)		(s/cc)	(s/cc)	(s/mm ²)
3W-101811-N	EM 812935	0.0770	1136	ND	0.0044	BAS	BAS
3W-101811-S	EM 812936	0.0770	1132	ND	0.0044	BAS	BAS
3W-101811-E	EM 812937	0.0770	1134	ND	0.0044	BAS	BAS
3W-101811-W	EM 812938	0.0770	1136	ND	0.0044	BAS	BAS
BLANK	EM 812939	NA	0	NA	---	---	---
BLANK	EM 812940	NA	0	NA	---	---	---

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.011

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

Digitally signed
 by Gina
 Votralino
 Date:
 2011.10.21
 08:50:27 -0600

DATA QA

Due Date: 10.20.11
Due Time: 8:55

RES 222866

REILAB Reservoirs Environmental, Inc.

5501 Logan St. Denver, CO 80216 • Ph: 303 984-1986 • Fax 303-477-4275 • Toll Free 866 RES-ENV

Pager: M3-500-aom

INVOICE TO: (IF DIFFERENT)

CONTACT INFORMATION:

Company: <u>P&R Environmental, Inc.</u>	Company:	Contact: <u>DAVE ROCKELLEY</u>	Contact:
Address: <u>47 W. 9000 S. #B</u>	Address:	Phone: <u>801 541 1035</u>	Phone:
<u>Sandy, Utah 84070</u>		Fax:	Fax:
		Cell/pager:	Cell/pager:

Project Number and/or P.O. #:

Final Date Deliverable Email Address:

Project Description/Location: # ParkCap - 33 W. Substation

DAVE@P&RENVIRO.COM

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		REQUESTED ANALYSIS										VALID MATRIX CODES		LAB NOTES:						
PLM / PCM / TEM <u>TEM</u> RUSH (Same Day) <input checked="" type="checkbox"/> PRIORITY (Next Day) <input type="checkbox"/> STANDARD (Rush PCM = 2hr, TEM = 8hr.)		PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OS1A	DUST - Total, Respirable	METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	Salmonella: +/-	E.coli O157:H7: +/-	Listeria: +/-	Aerobic Plate Count: +/- or Quantification	E.coli: +/- or Quantification	Coliforms: +/- or Quantification	S.aureus: +/- or Quantification	Y & M: +/- or Quantification	Mold: +/- Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Air = A	Bulk = B	
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm																		Dust = D	Paint = P	
Metal(s) / Dust RUSH 24 hr. 3-6 Day																		Soil = S	Wipe = W	
RCRA 8 / Metals & Welding Fume Scan / TCLP RUSH 5 day 10 day																		Swab = SW	F = Food	
Organica 24 hr. 3 day 5 Day																		Drinking Water = DW	Waste Water = WW	
MICROBIOLOGY LABORATORY HOURS: Weekdays: 8am - 8pm												O = Other								
E.coli O157:H7, Coliforms, S.aureus 24 hr. 2 Day 3-5 Day												**ASTM E1792 approved wipe media only**								
Salmonella, Listeria, E.coli, APC, Y & M 48 Hr. 3-5 Day												Sample Volume (L) / Area	Matrix Code	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)				
Mold RUSH 24 Hr 48 Hr 3 Day 5 Day												# Containers								
Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.																				
Special Instructions:																				
Client sample ID number (Sample ID's must be unique)																				
1	3W-101811-N																		812935	
2	3W-101811-S																		36	
3	3W-101811-E																		37	
4	3W-101811-W																		38	
5	Blank																		39	
6	Blank																		40	
7																				
8																				
9																				
10																				

Number of samples received: 6 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>[Signature]</u>	Date/Time: <u>10/10/11 1:00</u>	Sample Condition: On Ice Sealed Intact
Laboratory Use Only		Temp. (F°) Yes / No Yes / No Yes / No
Received By: <u>[Signature]</u>	Date/Time: <u>10-20-11</u>	Carrier: <u>Softex</u>
Results:	Contact Phone Email Fax Date Time Initials	Contact Phone Email Fax Date Time Initials
	Contact Phone Email Fax Date Time Initials	Contact Phone Email Fax Date Time Initials

TRK# 7953 1483 9201

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

A = Amosite
An = Anthophyllite
C = Chrysotile
Cr = Crocidolite
T = Tremolite

Structure Types

F = Fiber
B = Bundle
C = Cluster
M = Matrix

ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron

1.80 length units = 0.5 micron

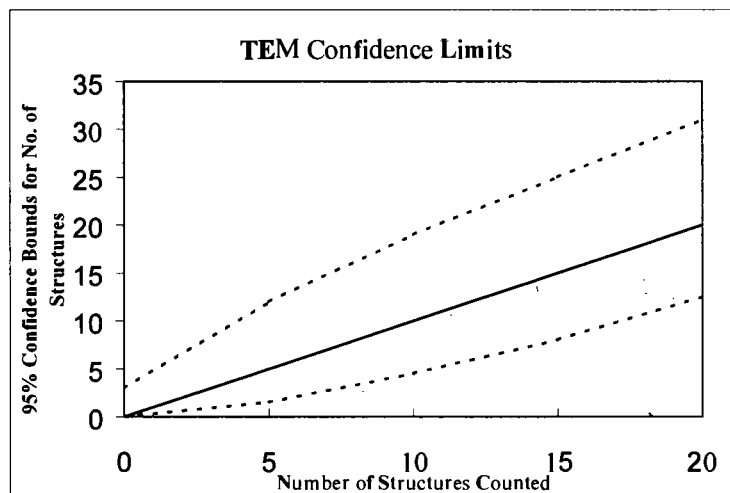
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr
Nathan DelHiero
Angela Heitger
Jonathan Bernard

Paul D. LoScalzo
Mark Steiner
Norberto Zimbleman
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100(N) S
Voltage (KV)	100 KV
Magnification	20KX 20KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	365
Secondary Filter Area (mm ²)	
QA Type	

Client :	REI
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1136
Date received by lab	10/20/11
Lab Job Number:	222866
Lab Sample Number:	812935

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	10/21/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K5-1	ND												
	H5-1	ND					Prep A & B	75% intact			5-7% debris			
	G5-1	ND												
	F5-1	ND												
B	H4-6	ND												
	G4-6	ND												
	F4-6	ND												

Rev 2-2008

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoir Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 1001N S
Voltage (KV)	100 KV
Magnification	20KX 30KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.2S um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	REI
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1132
Date received by lab	10/20/11
Lab Job Number:	222806
Lab Sample Number:	812936

Analyzed by	JB
Analysis date	10/21/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H2-6	ND												
	G2-6	ND					Pimp A	80% intact			5% debris			
	F2-6	ND					Pimp B ~ A							
	E2-6	ND												
B	H2-6	ND												
	H2-3	ND												
	G2-6	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100(N) S
Voltage (KV)	100 KV
Magnification	20KX 30KK
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	REI
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1134
Date received by lab	10/20/11
Lab Job Number:	222806
Lab Sample Number:	812937

Analyzed by	JB
Analysis date	10/21/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H4-1	ND												
	G4-1	ND					Prep A	70% intact			3-5% debris			
	F4-1	ND					Prep B	80% intact			3-5% debris			
	G3-1	ND												
B	F3-6	ND												
	E3-6	ND												
	C3-6	ND												

REV 8-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100(N) S
Voltage (KV)	100 KV
Magnification	20KX 30KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	REI
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1,136
Date received by lab	10/20/11
Lab Job Number:	222806
Lab Sample Number	812938

Analyzed by	JB
Analysis date	10/21/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
GrM storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Press Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	F2-3	ND												
	E2-3	ND												
	C2-3	ND												
	B2-3	ND												
B	H4-4	ND												
	H4-4	ND												
	G4-4	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equatlons Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening



October 21, 2011

Laboratory Code: RES
Subcontract Number: NA
Laboratory Report: RES 222867-1
Project # / P.O. #: None Given
Project Description: PacifiCorp - 3rd W. Substation

David Roskelley
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 222867-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeanne Orr", is written over a horizontal line.

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 222867-1
Client: R & R Environmental
Client Project Number / P.O.: None Given
Client Project Description: PacifiCorp - 3rd W. Substation
Date Samples Received: October 20, 2011
Analysis Type: TEM, AHERA
Turnaround: 24 Hour
Date Samples Analyzed: October 20, 2011

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm ²)	(L)		(s/cc)	(s/cc)	(s/mm ²)
3W-101911-N	EM 812941	0.0770	1128	ND	0.0044	BAS	BAS
3W-101911-S	EM 812942	0.0770	1128	ND	0.0044	BAS	BAS
3W-101911-E	EM 812943	0.0770	1126	1	0.0044	0.0044	13.0
3W-101911-W	EM 812944	0.0770	1126	ND	0.0044	BAS	BAS
BLANK	EM 812945	NA	0	NA	---	---	---
BLANK	EM 812946	NA	0	NA	---	---	---

NA = Not Analyzed

ND = None Detected


BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.011

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm


 Digitally
 signed by
 Gina Verrano
 Date:
 2011.10.21
 09:52:29
 05'00"

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number: RES 222867-1
 Client: R & R Environmental
 Client Project Number / P.O.: None Given
 Client Project Description: PacifiCorp - 3rd W. Substation
 Date Samples Received: October 20, 2011
 Analysis Type: TEM, AHERA
 Turnaround: 24 Hour
 Date Samples Analyzed: October 20, 2011

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-101911-N	EM 812941	ND	0	0	0	0	0	0	0
3W-101911-S	EM 812942	ND	0	0	0	0	0	0	0
3W-101911-E	EM 812943	Chrysotile	0	1	0	0	0	0	1
3W-101911-W	EM 812944	ND	0	0	0	0	0	0	0
BLANK	EM 812945	NA							
BLANK	EM 812946	NA							

*See Analytical Procedure for definitions

**C = Excluded from total due to lack of confirmation

**L = Excluded from total for length less than 0.5 micron (AHERA only)

**A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 10.20 at 30
Due Time: 835

REILAB Reservoirs Environmental, Inc.

501 Logan St. Denver, CO 80216 • Ph: 303 964-1986 • Fax 303-477-4275 • Toll Free 866 RESI-ENV

Pager: 303-508-2088

RES 222867

INVOICE TO: (IF DIFFERENT)

CONTACT INFORMATION:

Company: R&R Environmental, Inc	Company:	Contact: DAVE ROSELLEY	Contact:
Address: 47 W 9000 S #B	Address:	Phone: 801.541.1035	Phone:
Sandy, Utah 84070		Fax:	Fax:
		Cell/pager:	Cell/pager:
Project Number and/or P.O. #:		Final Data Deliverable Email Address:	
Project Description/Location: Pacificorp - 3rd W. Substation		DAVE@RRENVIRP.COM	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		REQUESTED ANALYSIS										VALID MATRIX CODES		LAB NOTES:											
PLM / PCM / TEM <input checked="" type="checkbox"/> RUSH (Same Day) <input checked="" type="checkbox"/> PRIORITY (Next Day) <input type="checkbox"/> STANDARD (Rush PCM = 2hr, TEM = 6hr.)												Air = A	Bulk = B												
												Dust = O	Paint = P												
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm												Soil = S	Wipe = W												
Metal(s) / Dust <input type="checkbox"/> RUSH <input type="checkbox"/> 24 hr. <input type="checkbox"/> 3-5 Day												Swab = SW	F = Food												
RCRA 8 / Metals & Welding <input type="checkbox"/> RUSH <input type="checkbox"/> 5 day <input type="checkbox"/> 10 day												Drinking Water = DW	Waste Water = WW												
Fume Scan / TCLP <input type="checkbox"/> RUSH <input type="checkbox"/> 5 day <input type="checkbox"/> 10 day												O = Other													
Organics <input type="checkbox"/> 24 hr. <input type="checkbox"/> 3 day <input type="checkbox"/> 5 Day												**ASTM E1782 approved wipe media only**													
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm																									
E.coli O157:H7, Coliforms, S.aureus <input type="checkbox"/> 24 hr. <input type="checkbox"/> 2 Day <input type="checkbox"/> 3-5 Day																									
Salmonella, Listeria, E.coli, APC, Y & M <input type="checkbox"/> 48 Hr. <input type="checkbox"/> 3-5 Day																									
Mold <input type="checkbox"/> RUSH <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 3 Day <input type="checkbox"/> 5 Day																									
Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.																									
Special Instructions:																									
Client sample ID number (Sample ID's must be unique)		PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quan.	Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s)	RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	Salmonella: +/-	E.coli O157:H7: +/-	Listeria: +/-	Anaerobic Plate Count: +/- or Quantification	E.coli: +/- or Quantification	Coliforms: +/- or Quantification	S.aureus: +/- or Quantification	Y & M: +/- or Quantification	Mold: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm ap	EM Number (Laboratory Use Only)
1 3W-101911-N																				1,120	A		10/19/11		812941
2 -S																				1,120					42
3 -E																				1,120					43
4 -W																				1,120					44
5 Blank																									45
6 Blank																									46
7																									
8																									
9																									
10																									

Number of samples received: 6 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical service agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: [Signature]	Date/Time: 10/19/11 1300	Sample Condition: On Ice	Sealed Yes	Intact Yes										
Laboratory Use Only	Date/Time: 10.20.11	Temp. (P°) 835	Yes / No	Yes / No										
Received By: [Signature]	Carrier: FEDEX													
Results:	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials
	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials

TRK#795314839201

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

A = Amosite
An = Anthophyllite
C = Chrysotile
Cr = Crocidolite
T = Tremolite

Structure Types

F = Fiber
B = Bundle
C = Cluster
M = Matrix

ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion

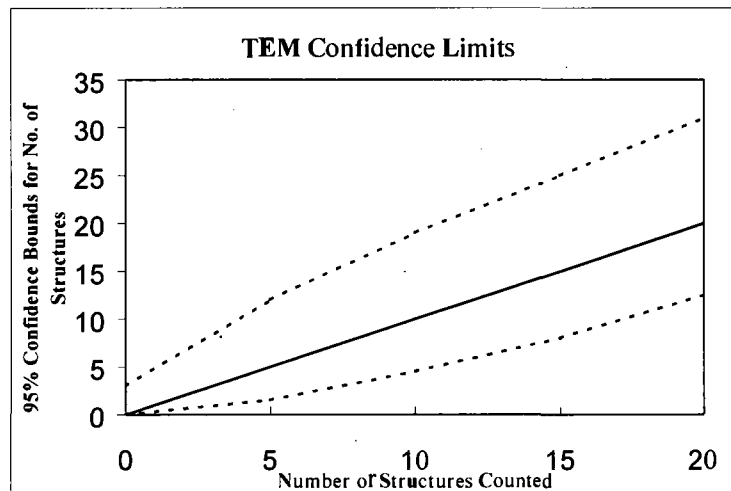
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr
Nathan DelHiero
Angela Heitger
Jonathan Bernard

Paul D. LoScalzo
Mark Steiner
Norberto Zimbleman
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnification	20KX 30KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	12/10/20 Walsh RTR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1128
Date received by lab	10/20/11
Lab Job Number:	222867
Lab Sample Number:	812941

Analyzed by	TK
Analysis date	10/20
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting miles (ISO, AHERA, ASTM)	AH
Grid storage location	Month: Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Data QA
JB 10/21/11

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	L4-1	ND												
	R4-1	ND					Prep A	~60% intact		~5% debris				
	H4-1	ND					Prep B	70% intact		5% debris				
	H3-4	ND						pen/pen		10/20/11				
B	G5-3	ND												
	F5-3	ND												
	E5-3	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N <u>5</u>
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 20KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client :	<u>Walsh</u>
Sample Type (A=Air, D=Dust):	<u>A</u>
Air volume (L) or dust area (cm ²)	<u>1128</u>
Date received by lab	<u>10/20/11</u>
Lab Job Number:	<u>222867</u>
Lab Sample Number:	<u>812942</u>

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	<u>AK</u>
Analysis date	<u>10/20</u>
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	<u>D</u>
Counting rules (ISO, AHERA, ASTM)	<u>AH</u>
Grid storage location	Month Analyzed
Scooter Alignment	Date Analyzed

Grki	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
<u>A</u>	<u>K6-1</u>	<u>ND</u>												
	<u>H6-1</u>	<u>ND</u>					<u>Prep A ~90% intact</u>				<u>~5% debris</u>			
	<u>G6-1</u>	<u>ND</u>					<u>Prep B ~A</u>							
<u>B</u>	<u>F5-4</u>	<u>ND</u>									<u>perfrom 10/20/11</u>			
	<u>E5-4</u>	<u>ND</u>												
	<u>F6-4</u>	<u>ND</u>												
	<u>E6-4</u>	<u>ND</u>												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnification	20KX 30KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 μ m
Scale: ID =	0.056 μ m
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	Walsh ROR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1126
Date received by lab	10/20/11
Lab Job Number:	222867
Lab Sample Number:	812943

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	TK
Analysis date	10/20
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibola	C	NAM		Sketch	Photo	EDS
A	E4-3	ND												
	C4-3	B		1	4.5	2	OD		/		/			
	B4-3	ND					Prep A 95% intact				~5% debris			
	E3-6	ND					Prep B 90% intact				~5% debris			
B	G15-6	ND					Pen/Prep 10/20/11							
	F5-6	ND												
	E5-6	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N <u>S</u>
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 20KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	<u>REI</u> <u>Walsh P & R</u>
Sample Type (A=Air, D=Dust):	<u>A</u>
Air volume (L) or dust area (cm ²)	<u>1126</u>
Date received by lab	<u>10/20/11</u>
Lab Job Number:	<u>222867</u>
Lab Sample Number:	<u>812944</u>

Analyzed by	<u>AK</u>
Analysis date	<u>10/20</u>
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	<u>D</u>
Counting rules (ISO, AHERA, ASTM)	<u>AH</u>
Grid storage location	Month Analyzed
Scooper Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to Secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
<u>A</u>	<u>64-6</u>	<u>ND</u>												
	<u>74-6</u>	<u>ND</u>					<u>Prop A</u>	<u>70%</u>			<u>Intact ~ 5% debris</u>			
	<u>84-6</u>	<u>ND</u>					<u>Prop B ~ A</u>							
	<u>04-6</u>	<u>ND</u>					<u>Long/short</u>				<u>10/20/11</u>			
<u>B</u>	<u>85-1</u>	<u>ND</u>												
	<u>85-3</u>	<u>ND</u>												
	<u>05-3</u>	<u>ND</u>												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

- Fiber:** is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
- Bundle:** is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
- Cluster:** is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
- Matrix:** is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP.

Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{i}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{\text{IL}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening



Reservoirs Environmental, Inc.

October 24, 2011

Laboratory Code: RES
Subcontract Number: NA
Laboratory Report: RES 222919-1
Project # / P.O. #: None Given
Project Description: 3rd West Sub Station
RMP

David Roskelley
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 222919-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE L° TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 222919-1
Client: R & R Environmental
Client Project Number / P.O.: None Given
Client Project Description: 3rd West Sub Station RMP
Date Samples Received: October 21, 2011
Analysis Type: TEM, AHERA
Turnaround: 24 Hour
Date Samples Analyzed: October 22, 2011

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm ²)	(L)		(s/cc)	(s/cc)	(s/mm ²)
3W-102011-E	EM 813441	0.0990	955	ND	0.0041	BAS	BAS
3W-102011-S	EM 813442	0.0880	951	ND	0.0046	BAS	BAS
3W-102011-N	EM 813443	0.0880	950	ND	0.0046	BAS	BAS
3W-102011-W	EM 813444	0.0880	950	ND	0.0046	BAS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.011

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm


 Digitally signed by
 Gina Vetrano
 Date:
 2011.10.24
 11:33:22
 06:00

DATA QA

Due Date: 10-24 ^{11.22}
 Due Time: 855 ^{due date}
 RC

RESERVOIRS ENVIRONMENTAL, INC.
 5801 Logan St. Denver, CO 80216 • Ph: 303 864-1988 • Fax: 303-477-4278 • Toll Free: 866 RESI-ENV
 Pager: 303-509-2898

RES 222919

INVOICE TO: (IF DIFFERENT)

CONTACT INFORMATION:

Company: <u>R&R Environmental</u>	Company:	Contact: <u>Dave Roskelley</u>	Contact:
Address: <u>47 W. 9000 S</u>	Address:	Phone:	Phone:
<u>Sandy, UT. 84043</u>		Fax:	Fax:
		Cell/pager: <u>801 541-1035</u>	Cell/pager:
Project Number and/or P.O. #:		Email Date Deliverable Email Address:	
Project Description/Location: <u>3rd West Sub Station RMP</u>		<u>dave@rrenviro.com</u>	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		REQUESTED ANALYSIS												VALID MATRIX CODES		LAB NOTES:					
PLM / PCM / TEM <u>TEM</u> RUSH (Same Day) <u>X</u> PRIORITY (Next Day) STANDARD (Rush PCM = 2hr, TEM = 6hr.)														Air = A Bulk = B							
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm														Dust = D Paint = P							
Metal(s) / Oust RUSH 24 hr. 3-5 Day														Soil = S Wipe = W							
RCRA 8 / Metals & Welding RUSH 8 day to day														Swab = SW F = Food							
Fume Scan / TCLP														Drinking Water = DW Waste Water = WW							
Organics 24 hr. 3 day 8 Day														O = Other							
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm														**ASTM E1792 approved wipe media only**							
E.coli O157:H7, Coliforms, S.aureus 24 hr 2 Day 3-5 Day														Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected m/d/yyyy	Time Collected h:mm ap	EM Number (Laboratory Use Only)		
Salmonella, Listeria, E.coli, APC, Y & M 48 Hr. 3-5 Day																					
Mold RUSH 24 Hr 48 Hr 8 Day 8 Day																					
Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.																					
Special Instructions:																					
Client sample ID number (Sample ID's must be unique)																					
1	3W-102011-E	X																	813441		
2	3W-102011-S																		42		
3	3W-102011-N																		43		
4	3W-102011-W																		44		
5																					
6																					
7																					
8																					
9																					
10																					

Number of samples received: (Additional samples shall be listed on attached long form.)

NOTE: RESI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days. Failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>[Signature]</u> - Fed Ex	Date/Time: <u>10/20/11</u>	Sample Condition:	On Ice	Sealed	Intact
Laboratory Use Only		Temp. (F°)	Yes / No	Yes / No	Yes / No
Received By: <u>[Signature]</u>	Date/Time: <u>10-21-11</u>	Center: <u>Fed Ex</u>			
Results:	Contact <u>Dave</u> Phone <u>801 541-1035</u> Email <u>Fax</u> Date <u>10/21</u> Time <u>11:30 AM</u> Initials <u>DR</u>	Contact	Phone	Email	Fax
	Contact	Phone	Email	Fax	

TRK# 7953 1515 9862

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

A = Amosite
An = Anthophyllite
C = Chrysotile
Cr = Crocidolite
T = Tremolite

Structure Types

F = Fiber
B = Bundle
C = Cluster
M = Matrix

ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion

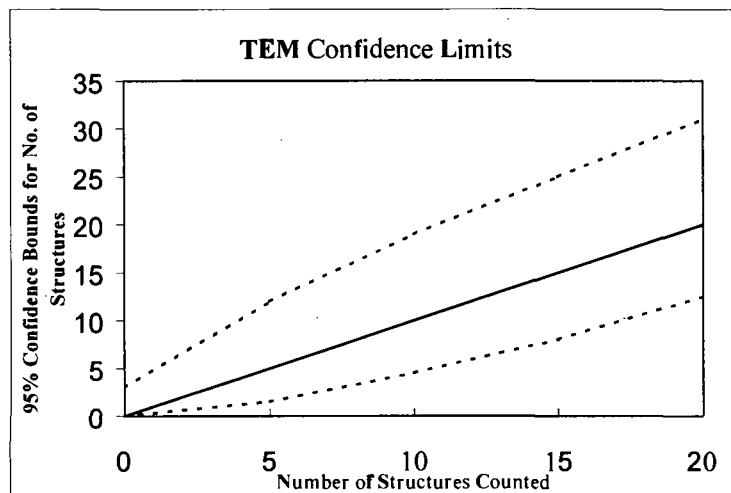
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr
Nathan DelHierro
Angela Heitger
Jonathan Bemard

Paul D. LoScalzo
Mark Steiner
Norberto Zimbleman
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnification	200X 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	N/A
QA Type	No QC

Client :	R & R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	955
Date received by lab	10/21/11
Lab Job Number:	222919
Lab Sample Number:	813441

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	AK
Analysis date	10/21/11
Method (D=Direct, i=indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	A1+
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EOS
A	B4-L	ND												
	B4-L	ND					Prep A	70% intact	5-10% debris					
	E6-L	ND					Prep B - A							
	E6-L	ND						from phase 10/21/11						
	C6-L	ND												
B	F4-L	ND												
	E4-L	ND												
	C4-L	ND												
	B4-L	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	N/A
QA Type	No QC

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	951
Date received by lab	10/21/11
Lab Job Number:	222 019
Lab Sample Number:	813442

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JR
Analysis date	10/22/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	C4-3	ND												
	H4-3	ND					Prep A ~60% intact			5-7% debris				
	G4-3	ND					Prep B ~A							
	G3-6	ND					Jan/Ken 10/22/11							
B	H4-4	ND												
	G4-4	ND												
	H5-6	ND												
	A5-6	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Otter (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoir Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	n/a
QA Type	No QC

Client:	RR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	950
Date received by lab	10/21/11
Lab Job Number:	222 019
Lab Sample Number:	813443

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	RR
Analysis date	10/23/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EOS
A	H5-4	ND												
	G5-4	ND					Prep A 90% intact			~5% debris				
	F5-4	ND					Prep B ~A							
	E5-4	ND								See Prep 10/22/11				
B	E4-6	ND												
	M-6	ND												
	B-6	ND												
	E3-6	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N (S)
Voltage (KV)	100 KV
Magnification	200KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	N/A
QA Type	No QC

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	950
Date received by lab	10/21/11
Lab Job Number:	222919
Lab Sample Number:	813444

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JR
Analysis date	10/22/11
Method (O=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H4-4	ND												
	G4-4	ND					Prep A	80% intact		15% debris				
	G3-3	ND					Prep B ~ A							
	G4-6	ND					for prep 10/22/11							
B	L4-1	ND												
	K4-1	ND												
	H4-1	ND												
	G4-1	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{i}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening



October 25, 2011

Laboratory Code: RES
Subcontract Number: NA
Laboratory Report: RES 223009-1
Project # / P.O. #: None Given
Project Description: 3rd West Sub Station - RMP

David Roskelley
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 223009-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeanne Orr", is written over a horizontal line.

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 223009-1
 Client: R & R Environmental
 Client Project Number / P.O.: None Given
 Client Project Description: 3rd West Sub Station - RMP
 Date Samples Received: October 24, 2011
 Analysis Type: TEM, AHERA
 Turnaround: 24 Hour
 Date Samples Analyzed: October 25, 2011

Client ID Number	Lab ID Number	Area Analyzed (mm ²)	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm ²)
3W-102111-E	EM 814010	0.1100	741	ND	0.0047	BAS	BAS
3W-102111-S	EM 814011	0.1100	741	ND	0.0047	BAS	BAS
3W-102111-N	EM 814012	0.1100	741	1	0.0047	0.0047	9.1
3W-102111-W	EM 814013	0.1100	741	ND	0.0047	BAS	BAS

NA = Not Analyzed
 ND = None Detected
 BAS = Below Analytical Sensitivity
 Average Grid Opening in mm² = 0.011

Filter Material = Mixed Cellulose Ester
 Filter Diameter = 25 mm
 Effective Filter Area = 385 sq mm

Digitally
 signed by
 Gina
 Vetrano
 Date:
 2011.10.25
 15:18:46 -
 06'00'

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number: RES 223009-1
 Client: R & R Environmental
 Client Project Number / P.O.: None Given
 Client Project Description: 3rd West Sub Station - RMP
 Date Samples Received: October 24, 2011
 Analysis Type: TEM, AHERA
 Turnaround: 24 Hour
 Date Samples Analyzed: October 25, 2011

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-102111-E	EM 814010	ND	0	0	0	0	0	0	0
3W-102111-S	EM 814011	ND	0	0	0	0	0	0	0
3W-102111-N	EM 814012	Chrysotile	0	1	0	0	0	0	1
3W-102111-W	EM 814013	ND	0	0	0	0	0	0	0

*See Analytical Procedure for definitions

**C = Excluded from total due to lack of confirmation

**L = Excluded from total for length less than 0.5 micron (AHERA only)

**A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 10-23
Due Time: 845

RES 223009

**Reservoirs Environmental, Inc.**

5801 Logan St. Denver, CO 80216 • Ph: 303 964-1888 • Fax 303-477-4275 • Toll Free: 866 REGI-ENV

Pager : 303-809-2088

INVOICE TO: (IF DIFFERENT)**CONTACT INFORMATION:**

Company: <u>R&R</u>		Company: <u>Dave Roskelley</u>	
Address: <u>417 W. 900 S</u>		Phone: <u>801 541-1035</u>	
<u>Sandy, Ut. 84070</u>		Fax:	
		Cellpager:	
Project Number and/or P.O. #:		Final Data Conversation Email Address:	
Project Description/Location: <u>3rd West Substation - RMP</u>		<u>dave@renviro.com</u>	

[illegible]

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REJ will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>Justin Thomas</u> FedEx Date/Time: <u>10/21/11</u>										Sample Condition: On Ice Sealed <u>Yes</u>		Temp. (F) <u>44.8</u> Yes / No Yes / No <u>Yes</u>	
Laboratory Use Only Received By: <u>Kaplan</u> Date/Time: <u>10-24-11</u> 845 Carder <u>FedEx</u>													
Results:													
Contact		Phone		Email		Fax		Date		Time		Initials	
Contact		Phone		Email		Fax		Date		Time		Initials	
Contact		Phone		Email		Fax		Date		Time		Initials	

TRK# 7953 2039 1550

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

A = Amosite
An = Anthophyllite
C = Chrysotile
Cr = Crocidolite
T = Tremolite

Structure Types

F = Fiber
B = Bundle
C = Cluster
M = Matrix

ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion

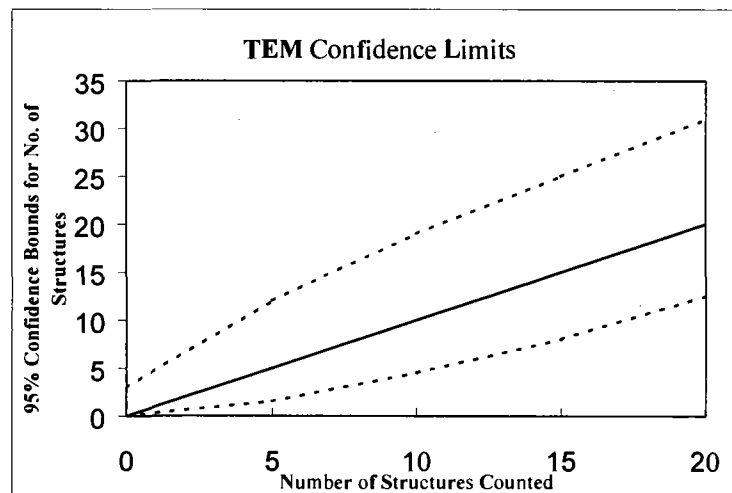
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr
Nathan DelHiero
Angela Heitger
Jonathan Bernard

Paul D. LoScalzo
Mark Steiner
Norberto Zimbleman
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N(S)
Voltage (KV)	100 KV
Magnification	20iKX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.058 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	741
Date received by lab	10/24/11
Lab Job Number:	223009
Lab Sample Number:	814010

Analyzed by	JTB
Analysis date	10/25/11
Method (D=Direct, I=Indirect, IA=indirect, ashed)	D
Counting miles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H4-3	ND												
	G4-3	ND												
	F4-3	ND												
	F5-1	ND												
	E5-1	ND												
B	H4-4	ND												
	G4-4	ND												
	F4-4	ND												
	G4-6	ND												
	F4-6	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

QA.84

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N(S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	741
Date received by lab	10/24/11
Lab Job Number:	223009
Lab Sample Number:	8140101

Analyzed by	JTB
Analysis date	10/25/11
Method (D=Direct, I=Indirect, IA=indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	A#
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K4-1	ND												
	A4-1	ND					Pimp A	60% in bank		1-3% debris				
	G4-1	ND					Pimp B	60% in bank		1-3% debris				
	G3-3	ND												
	F3-3	ND												
B	L4-6	ND												
	K4-6	ND												
	H4-6	ND												
	L5-1	ND												
	K5-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoir Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N(S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	741
Date received by lab	10/24/11
Lab Job Number:	223009
Lab Sample Number:	814012

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	10/25/11
Method (D=Direct, I=Indirect, IA=Indirect ashed)	D
Counting rules (ISO, AHERA, ASTM)	A#
Grid storage location	Month Analyzed
Scoops Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	L4-1	ND												
	K4-1	ND												
	H4-1	ND												
	L5-1	ND												
	K5-1	ND												
B	G4-3	ND												
	F4-3	ND												
	E4-3	B		1	12	10	CDX		✓					
	F5-3	ND												
	E5-3	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoir Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N(S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	741
Date received by lab	10/24/11
Lab Job Number	223009
Lab Sample Number	814013

Analyzed by	JB
Analysis date	10/25/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Assignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H3-6	ND												
	G3-6	ND												
	F3-6	ND					Pimp A	60% intact			5-7% debris			
	E3-6	ND					Pimp B	80% intact			5-7% debris			
	C3-6	ND												
B	H4-4	ND												
	G4-4	ND												
	F4-4	ND												
	G4-3	ND												
	F4-3	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

$$\text{GO} = \text{TEM grid opening}$$

Due Date: 10-26
Due Time: 8:55

RES 223071

REILAB Reservoirs Environmental, Inc.

5801 Logan Bl. Denver, CO 80216 • Ph: 303-964-1986 • Fax 303-477-4275 • Toll Free: 800-REI-ENV

Pager: 303-609-2098

INVOICE TO: (IF DIFFERENT)

CONTACT INFORMATION:

Company: <u>REI Environmental, Inc.</u>	Company:	Contact: <u>DAVE RORKELEY</u>	Contact:
Address: <u>100 W. 92ND ST. #25</u>	Address:	Phone: <u>821.541.1055</u>	Phone:
<u>Sandy, UT 84070</u>		Fax:	Fax:
		Cell/pager:	Cell/pager:
Project Number and/or P.O. #:		Final Date Deliverable Email Address:	
Project Description/Location: <u>3rd WKA Sub - PacificCorp</u>		<u>DAVE@REIENVIR.COM</u>	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		REQUESTED ANALYSIS												VALID MATRIX CODES		LAB NOTES:				
PLM / PCM <u>TEM</u>	<u> </u> RUSH (Same Day) <u>✓</u> PRIORITY (Next Day) <u> </u> STANDARD	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-sec, ISO-Indirect Prep	PCM - 7400A, 7400B, OS+H	DUST - Total, Respirable	METALS - Analyte(s)	RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	Salmonella: +/-	E. coli O157:H7: +/-	Listeria: +/-	Aerobic Plate Count: +/- or Quantification	E. coli: +/- or Quantification	Coliforms: +/- or Quantification	Staphylococcus: +/- or Quantification	Y & M: +/- or Quantification	Mold: +/-, Identification, Quantification	Air = A	Bulk = B	EM Number (Laboratory Use Only)
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm																		Dust = D	Paint = P	
Metal(s) / Dust <u> </u> RUSH <u> </u> 24 hr. <u> </u> 3-5 Day																		Soil = S	Wipe = W	
RCRA 8 / Metals & Welding Fume Scan / TCLP <u> </u> RUSH <u> </u> 5 day <u> </u> 10 day																		&wab = SW	F = Food	
Organics <u> </u> 24 hr. <u> </u> 5 day <u> </u> 5 Day																		Drinking Water = DW	Waste Water = WW	
MICROBIOLOGY LABORATORY HOURS: Weekdays: 8am - 5pm														O = Other	**ASTM E1782 approved wipe media only**					
E. coli O157:H7, Coliforms, Staphylococcus														Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p		
Salmonella, Listeria, E. coli, APC, Y & M																				
Mold																				
Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.																				
Special Instructions:																				
Client sample ID number (Sample ID's must be unique)																				
1	<u>3W-102211-N Area</u>																		<u>814331</u>	
2	<u>-S</u>																		<u>32</u>	
3	<u>-E</u>																		<u>33</u>	
4	<u>-W</u>																		<u>34</u>	
5	<u>Blank</u>																		<u>35</u>	
6	<u>Blank</u>																		<u>36</u>	
7																				
8																				
9																				
10																				

Number of samples received: _____ (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agree that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute a complete service agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>[Signature]</u>	Date/Time: <u>10/24/11</u>	Sample Condition: On Ice <u> </u> Sealed <u> </u> Intact <u> </u>
Laboratory Use Only		Temp. (F°) <u> </u> Yes / No <u> </u> Yes / No <u> </u> Yes / No <u> </u>
Received By: <u>[Signature]</u>	Date/Time: <u>10-25-11</u>	Carrier: <u>FedEx</u>
Results	Contact Phone Email Fax Date Time Initials	Contact Phone Email Fax Date Time Initials
	Contact Phone Email Fax Date Time Initials	Contact Phone Email Fax Date Time Initials

TRK# 753330 5277

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

A = Amosite
An = Anthophyllite
C = Chrysotile
Cr = Crocidolite
T = Tremolite

Structure Types

F = Fiber
B = Bundle
C = Cluster
M = Matrix

ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron

1.80 length units = 0.5 micron

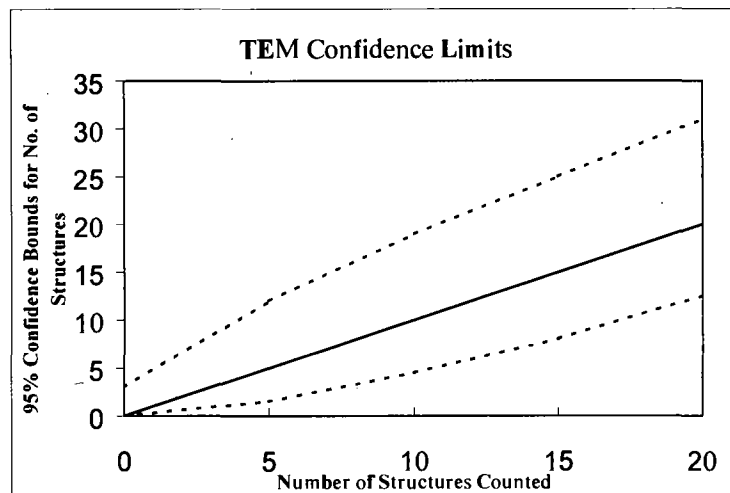
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr
Nathan DelHiero
Angela Heitger
Jonathan Bernard

Paul D. LoScalzo
Mark Steiner
Norberto Zimbleman
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.058 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	n/A
QA Type	no QA

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	780
Date received by lab	10/25/11
Lab Job Number:	223071
Lab Sample Number	814334

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	AK
Analysis date	10/25/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EOS
A	K5-6	ND												
	H5-6	ND					Prep	A 80% intact		3-5% debris				
	G5-6	ND					Prep	B n/A						
	F5-6	ND												
	H4-4	ND												
B	K3-4	ND												
	H3-4	ND												
	G3-4	ND												
	F3-4	ND												
	E3-4	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N(S)
Voltage (KV)	100 KV
Magnification	20KX 20KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	N/A
QA Type	no QA

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	780
Date received by lab	10/25/11
Lab Job Number:	223071
Lab Sample Number:	814331

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	AK
Analysis date	10/25/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	E3-6	ND												
	C3-6	ND					Prep	A ~60% intact			~5% debris			
	B3-6	ND					Prep	B ~A						
	H5-3	ND									for prep 10/25/11			
	G5-3	ND												
B	G3-1	ND												
	F3-1	ND												
	F2-6	ND												
	G6-4	ND												
	G6-4	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N(S)
Voltage (KV)	100 KV
Magnification	20KX 30KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	N/A
QA Type	NO QA

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	780
Date received by lab	10/25/11
Lab Job Number:	223071
Lab Sample Number:	814332

Analyzed by	JK
Analysis date	10/25/11
Method (D=Direct, I=Indirect, IA=indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EOS
A	G5-4	ND												
	F5-4	ND					Prep A 70/	intact		~5/ debris				
	E5-4	ND					Prep B 90/	intact		~5/ debris				
	C5-1	NP									for prep 10/25/11			
	B5-1	ND												
B	H4-3	ND												
	G4-3	ND												
	F4-3	ND												
	E4-3	ND												
	C4-3	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N(S)
Voltage (KV)	100 KV
Magnification	20KX 30KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	N/A
QA Type	no QA

Client:	R+R
Sample Type (A=Air, O=Dust):	A
Air volume (L) or dust area (cm ²)	780
Date received by lab	10/25/11
Lab Job Number:	223071
Lab Sample Number:	814333

Analyzed by	JK
Analysis date	10/25/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volumes (nd)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibola	C	NAM		Sketch	Photo	EDS
A	K4-4	ND												
	H4-4	ND					Prep A	70% intact		35% debris				
	E4-4	ND					Prep B	N/A						
	F4-4	ND												
	G4-4	ND												
	E4-4	ND												
B	K5-4	ND												
	H5-4	ND												
	G5-4	ND												
	F5-4	ND												
	E5-4	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

- Fiber:** is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
- Bundle:** is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
- Cluster:** is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
- Matrix:** is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{iL}{i000cc}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening